

INTEROFFICE TRANSPORT

Interoffice transport facilities comprise large-capacity cables and associated electronic equipment used to carry calls between switches. Verizon states that they encompass dedicated transport, common or shared transport, dark fiber transport, and two-way trunking and that multiplexing is an additional component of interoffice transport. This section considers the issues that have been raised with regard to dedicated transport--which refers to a facility purchased and used entirely by one CLEC--and shared transport, involving facilities used by more than one carrier, each of which pays for its share on a usage basis.

Dedicated Transport

Verizon's dedicated transport cost study assume 100% deployment of what Verizon regards as forward-looking interoffice transport technology: synchronous optical network (SONET) transport rings with 100% fiber facilities. Several parties, primarily AT&T and the CLEC Alliance, offer challenges to Verizon's study.

1. Ports Per Node

Each SONET ring provides 48 DS3 connections. AT&T contends that Verizon has understated the number of ports that must be used at each SONET node to provide the 48 DS3s, thereby overstating its investment per DS3 and, in turn, the cost of dedicated interoffice transport. More specifically, AT&T calculates, on the basis of Verizon's assumptions, that each node must have on average approximately 26 ports. (The figure is based on the need for 96 ports to support 48 DS3s, since each DS3 enters the ring at one node and departs it at another. Verizon asserts there are 3.76 nodes per SONET ring,²⁹³ implying approximately 26 ports per node.) Verizon's study, however, assumes only 16 ports per node, thereby substantially overstating the investment per DS3.

²⁹³ Exh. 323, Workpaper part C1, §1.0, p. 8 of 85, line 372.

AT&T contends the error has a significant effect on costs because the bulk of the cost associated with SONET rings is the fixed cost of physically establishing the node. Beyond that, the overstatement of costs affects rates for dedicated transport at lower speeds (DS1 and DS0), which are based on the DS3 study.

In rebuttal, Verizon acknowledged the inconsistency, but it maintains that while its current network in fact has 3.76 nodes per SONET ring, its cost study network assumed six nodes per ring. AT&T contends, however, that Verizon has not analyzed the effect of its correction and has failed to bear its burden of proving AT&T's adjustment on its basis incorrect. The CLEC Alliance argues to similar effect, asserting more generally that Verizon's costs are so overstated that CLECs "could obtain access at considerably less cost by purchasing transport at retail from special access tariffs."²⁹⁴

On the latter observation, Verizon responds that transport purchased at retail would not be cheaper than the UNE if mileage as well as fixed charges were taken into account, as they must be.²⁹⁵ With respect to the specific adjustment at issue, Verizon contends that it properly resolved the inconsistency and that its forward-looking network design contemplated six nodes per ring, yielding the 16 DS3 terminations per node used in the cost calculation. The figure of 3.76 nodes per ring characterizes its existing network, which does not conform to the forward-looking design, but Verizon used that figure only to calculate fiber costs (thereby understating them) but not to calculate SONET costs.²⁹⁶

Verizon's explanation is satisfactory; no adjustment is needed.

²⁹⁴ CLEC Alliance's Initial Brief, p. 103 (emphasis in original; footnote omitted).

²⁹⁵ Verizon's Reply Brief, p. 139, n. 355.

²⁹⁶ Verizon's Initial Brief, p. 266, citing Tr. 3,496-3,497.

2. Optional Digital Cross Connect System

AT&T objects to Verizon's inclusion of a digital cross connect system (DCS) on most dedicated transport circuits regardless of whether the CLEC wishes to purchase it. It maintains the FCC has allowed CLECs to order dedicated transport and DCS separately and charges that Verizon improperly declines to address the issue when it contends that this case concerns costs, not its unbundling obligation. According to AT&T, "if DCS is to be available on an unbundled basis (and Verizon does not argue that it should not be), it needs to be costed and priced."²⁹⁷ In its brief, Verizon reiterates its contention that its unbundling obligation is not within the scope of this proceeding, and it points out that its studies do not purport to analyze the costs of an unbundled DCS product, which no CLEC has yet requested.²⁹⁸

Regardless of whether any CLEC has requested an unbundled DCS, the costs of such a product should be identified here, for the reasons AT&T states, unless Verizon can show a conclusive determination that it need not offer the product. If that issue remains open, and Verizon wishes to argue against any such offering, it remains free to do so in other fora.

3. Fill Factors

The CLEC Alliance contends that the 75% utilization factors assumed in Verizon's interoffice transport cost study are uniformly too low. It maintains that the fill factor for DS1-to-DS0 multiplexing should be 100%, inasmuch as the CLEC ordering such multiplexing purchases the entire capacity of the equipment regardless of the number of channels it actually uses. More generally, it maintains that even though the equipment installed to accommodate traffic growth may be utilized only at a 75% rate, the density and volume of the New York City telecommunications market suggests that existing facilities

²⁹⁷ AT&T's Initial Brief, p. 115.

²⁹⁸ Verizon's Initial Brief, pp. 268-269.

accommodating existing traffic are likely at full capacity, and that the overall fill factor therefore ought to exceed 75%. It contends as well that the instantaneously installed TELRIC network can be designed to take advantage of the modularity and varied sizes of SONET facilities in such a way as to insure most efficient utilization; that Verizon has failed to account for the sharing of fiber in the feeder with fiber in the interoffice transport network; and that fill factors should reflect not the rate of utilization at the time the facility is installed but, rather, the utilization of facilities over their entire economic life, taking into account increased demand over that period. The CLEC Alliance witnesses recommended fill factors of between 80% and 90% for dedicated transport.

Verizon's reply brief on this point refers the reader to its initial brief, which treats the issue not in the context of the CLEC Alliance's arguments but rather those of WorldCom witness Dr. Ankum.²⁹⁹ Verizon argues that Dr. Ankum's case for higher fill factors fails to recognize that network engineering is intended not to insure full capacity utilization but to meet customer service requirements at the lowest possible life cycle cost. To that end, Verizon asserts, SONET rings are never loaded beyond 50% of their line capacity, a criterion needed to insure continuous liability in the event of a line failure. It points in this regard to WorldCom's complaints over Verizon's asserted slowness in meeting unforecasted trunk capacity requirements. Nor does it see any basis for Dr. Ankum's specific fill factor recommendations, renewing its charge that he lacks pertinent experience and expertise.

Verizon properly refers to the need for adequate capacity to ensure a prompt response to orders. Still, the CLEC Alliance's arguments strongly imply a fill factor higher than Verizon proposes; once again, it is important to remember not only that Verizon bears the burden of proof but also that in a forward-looking analysis, its own experience provides the

²⁹⁹ Verizon's Initial Brief, pp. 267-268.

starting point but not the conclusion. I recommend a fill factor here of 80%.

4. Deaveraging

The CLEC Alliance urges that transport costs be deaveraged, asserting that the greater traffic volume in zones 1 and 2 will result in higher fill factors and the placement of more cables and larger terminals in locations with more traffic, thereby reducing transport costs. In addition, it contends, distances between nodes will differ among the geographic regions, and shorter SONET ring lengths will result in lower costs in the more densely populated areas.

Verizon, again responding in its initial brief to WorldCom witness Ankum's advocacy of deaveraging, sees no basis for doing so but contends that if a separate Manhattan rate were established, it would have to reflect not only the lower costs associated with shorter transport distances but the added costs associated with the high complexity circuit design characteristic of Manhattan.

Verizon properly notes the need to reflect upward as well as downward cost variation in any deaveraging effort. But it should include, in its brief on exceptions, an estimate of a deaveraged Manhattan dedicated interoffice transport rate, so a judgement can be reached on whether costs differ enough to warrant deaveraging.

Shared Transport

AT&T contends that shared transport costs are overstated insofar as they are based on the assertedly overstated costs of dedicated transport. Beyond that, it believes Verizon overstated the weighted average distance between its wire centers. Contending that it is not clear how Verizon developed its distance between wire centers, AT&T surmises--alleging a lack of clarity in Verizon's presentation--that Verizon relied on the estimated distance of 3.4 miles between one of its end offices and its tandem, but, it says,

most common transport traverses the much shorter distance between two end offices. It adds that Verizon responded in rebuttal only by saying "AT&T is not correct."³⁰⁰ AT&T says it lacks the information needed to calculate a weighted average distance, but notes experience in other jurisdictions suggests a reasonable weighted average distance is approximately 12 miles.³⁰¹

Verizon maintains that AT&T's favored method for developing the weighted average--minutes of use carried over each route--would be impractical because the specific routing of each minute of use is not recorded. That may well be so; but Verizon has not shown AT&T's concern to be invalid in principle, nor has it borne its burden of showing its own mileage estimate to be reasonable. In the apparent absence of a better-supported figure, I recommend use of AT&T's 12 miles.

³⁰⁰ AT&T's Initial Brief, p. 117, citing Tr. 3,498.

³⁰¹ Tr. 1,532.

DSL COMPATIBLE LOOPS AND LINE SHARING

Introduction

Digital subscriber line (DSL) technology entails the use of specialized electronics that permit the transmission over copper telephone lines (as distinct from more advanced optical fiber) of high-speed data signals while at the same time allowing the customer to make ordinary voice calls. The technology takes several forms, collectively referred to as xDSL; of particular pertinence here are asymmetric DSL (ADSL) and high-bit-rate DSL (HDSL).³⁰²

"Line sharing," meanwhile, refers to an arrangement under which a CLEC is able to provide DSL data service over a loop that is also used by the incumbent carrier to provide retail voice grade service. The voice traffic is transported in the low frequency (0 to 4kHz) range of the loop; the data traffic is transported in the higher frequency spectrum above 4kHz.

Some rates for DSL and line sharing offerings were considered in two earlier accelerated tracks of this proceeding. In Opinion No. 99-12 (issued December 17, 1999) (the DSL Opinion), the Commission set rates for the nonrecurring charges and one recurring charge that Verizon had proposed for DSL loops. The rates were set on a permanent basis, in the legal sense of not being subject to refund or reparation, but the Commission characterized them as "interim," inasmuch as they were expressly set for further examination here. Later, in Opinion 00-7 (issued May 26, 2000) (the Line Sharing Opinion), the Commission set rates for line sharing. Those rates were

³⁰² More specifically, ADSL uses a twisted-pair copper loop; the asymmetry refers to its ability to support a much higher transmission speed to the customer than from the customer. Its use thus permits rapid downloading by a customer of information from the internet or other databases. HDSL uses either a two-wire or a four-wire copper loop; transmission speeds (which are the same in both directions) are much higher when the four-wire version is used. Verizon's tariff includes rates for ADSL loops and for two-wire and four-wire HDSL.

made temporary, but "only with respect to quantitative matters that depend on the yet to be admitted [in Module 3] material. To the extent qualitative judgments regarding the applicability of various rate elements to line sharing [could] be made on the basis of the existing record their rate implications [were made] permanent."³⁰³

Among the issues under this heading is the propriety of Verizon's having priced DSL loops and line sharing on the basis of an all-copper loop architecture. The CLECs attacked that concept on the premise that doing so was internally inconsistent with the basing of all other UNE costs on a forward-looking all-fiber feeder architecture and, relatedly, that it was an unlawful violation of TELRIC requirements. Verizon argued that the use of copper was correct, inasmuch as DSL was an inherently copper-based technology that would not be needed in an all-fiber environment. The Commission generally agreed with Verizon in the DSL Opinion and the Line Sharing Opinion, and Verizon insists that those decisions represent the "law of the case," warranting rejection of the renewed arguments to the contrary by Rhythms/Covad and the CLEC Alliance.³⁰⁴

DSL Network Design Generally

Rhythms/Covad charge that Verizon, in effect, studied two separate networks--one including copper for nonrecurring charges imposed on DSL providers and one without copper, for all other purposes, including recurring charges for DSL loops. As a result, it failed to take account, in its overall loop study, of the demand for DSL service or of the need, imposed by TELRIC, to determine the "lowest cost network configuration for meeting the total demand for all the products, services, and functionalities under study."³⁰⁵ Because of the demand for DSL loops,

³⁰³ Line Sharing Opinion, p. 17.

³⁰⁴ Verizon's Initial Brief, p. 169.

³⁰⁵ Rhythms/Covad's Initial Brief, p.7, citing Tr. 4,147 (emphasis in original).

Rhythms/Covad continues, the most efficient network configuration might be one that includes some copper feeder, and the efficient, forward-looking network might be a mix of all copper and copper/fiber loops. Verizon's failure to consider that possibility compromises its studies' compliance with TELRIC and warrants adoption of DSL loop rates established on the basis of the HAI Model, which contemplates the provision of voice and advanced services on an integrated basis.

Beyond that, Rhythms/Covad contend that Verizon's DSL study overstates the cost of its copper-based construct, for Verizon is installing no new copper, and the cost should be only that of maintaining the loops already in place. They argue as well that Verizon's method improperly requires a DSL provider to pay for fiber and DLC electronics even when the loop it purchases does not include them (as when the DLC electronics, normally found in an RT, are located in the central office and the DSL provider requires nothing more than access to the copper loop as it enters the central office).³⁰⁶

Verizon insists there is no inconsistency between the network construct used for DSL recurring and nonrecurring costs; rather, the difference is between the architecture used for voice grade loops (premised on all-fiber feeder) and that used for the nonrecurring charges for DSL-compatible and shared loops. It contends the Commission has recognized the propriety of that distinction in its earlier orders, inasmuch as voice grade loops on the one hand and DSL compatible and shared loops on the other are provisioned differently in a forward-looking environment. It goes on to cite references to copper in the FCC's definition of the line sharing element and in its discussion of DSL-compatible loops, noting, among other things, the FCC's statement that "xDSL cannot work over fiber, and it

³⁰⁶ Rhythms/Covad's Initial Brief, pp. 9-10.

generally requires a 'clean' (i.e., conditioned) copper loop."³⁰⁷ According to Verizon, the most efficient technology currently available for DSL transmission and for line sharing comprises copper cables. Verizon acknowledges that there are various ways of accessing a DSL compatible or shared copper loop facility, some of which may entail use of a fiber feeder, but it insists that "only the 'home-run', end-to-end-copper arrangement is at issue here."³⁰⁸ It adds that both provisioning arrangements being considered in the pending DSL collaborative (Case 00-C-0127) assume an all-copper loop, and Verizon therefore focused on the costs of that arrangement; the possible need to measure the costs of other arrangements that may be identified in no way impairs the forward-looking nature of the only two provisioning arrangements defined to date.

"The law of the case," as Verizon puts it, indeed contemplates copper-based DSL. The Commission fully explained that decision when it made it, and nothing presented here warrants a change, given the facts as they then existed. Those facts continue to be reflected in the provisioning arrangements considered in the Commission's DSL collaborative as of the time Verizon presented its studies, and its premise of copper-based DSL configurations was proper.

Technology, of course, continues to evolve and the configurations costed by Verizon cannot be assumed to be the last word. Alternatives to copper-based DSL are being examined in the DSL collaborative and at the FCC. They present, for most part, provisioning issues not properly before me; but I cannot ignore their implications for costing. The best way to deal with this fluidity is to revisit the matter a year from now (or

³⁰⁷ Verizon's Initial Brief, p. 171, citing Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Third Report and Order and Fourth Notice of Proposed Rulemaking (rel. November 5, 1999) (UNE Remand Order) ¶204, n. 390. Loop conditioning is explained below.

³⁰⁸ Verizon's Initial Brief, p. 172.

sooner if developments in the DSL collaborative or the broader DSL market so warrant), at which time Verizon should be required to present cost studies on newly available DSL alternatives and should bear the burden of proving that it is offering DSL in the most cost-effective manner possible. For now, DSL rates should be set on the basis proposed by Verizon, adjusted to the extent discussed below; those rates should be permanent in the legal sense, subject to change only prospectively.

Loop Conditioning and
Qualification Charges

The charges examined under this heading arise because copper loops often are equipped with devices that preclude their use to support DSL. Some of these devices ("load coils") were installed to enhance the ability of longer loops (usually in excess of 18,000 feet) to transmit voice signals; others ("bridged taps") were added to increase the number of locations that a single loop could serve. All of them are incompatible, to varying extents, with use of the loop for DSL. Providing a loop capable of supporting DSL, accordingly, entails a process of determining whether the loop is equipped with any such devices ("loop qualification") and, if it is, removing them ("loop conditioning").

In confirming that incumbent LECs, regardless of whether they themselves offer DSL, were obligated to provide CLECs wanting to offer DSL access to conditioned loops, the FCC reaffirmed as well its earlier determination that CLECs would be obligated to compensate ILECs for the cost of loop conditioning; and it suggested that incumbents should be able charge for conditioning loops shorter than 18,000 feet even though networks built today would not include load coils on such loops. But, the FCC added,

We recognize . . . that the charges incumbent LECs impose for conditioned loops represent sunk costs to the competitive LEC and that these costs may constitute a barrier to offering xDSL services. We also recognize incumbent LECs may have an incentive to

inflate the charge for line conditioning by including additional common and overhead costs, as well as profits. We defer to the states to insure that the costs incumbents impose on competitors for line conditioning are in compliance with our pricing rules for nonrecurring costs.³⁰⁹

Issues are presented with respect to both the loop conditioning charge and the loop qualification charge. As nonrecurring charges, their specific levels are affected by the questions pertaining to nonrecurring charges generally, discussed separately below. This section considers qualitative issues related to recovery in principle of these costs.

1. Conditioning Charges

Verizon contends that the FCC has authorized recovery of loop conditioning costs on at least three occasions and, pointing to the passage previously cited, has authorized recovery of load coil removal costs even where placement of the coils would not be called for under current standards.³¹⁰

Rhythms/Covad charge that the proposed conditioning charges are anticompetitive and set so high that they exceed "by many multiples" the entire forward-looking cost of a new loop.³¹¹ They urge a conditioning charge of zero, arguing, first, that a forward-looking, TELRIC-compliant, all-fiber-feeder network would impose no need to condition loops and that recovery of loop conditioning costs, accordingly, is at odds with TELRIC. Moreover, applicable design standards for copper networks have obviated the installation of load coils and excess bridged tap for 20 or 30 years, and plant complying with those standards likewise should require no conditioning. Rhythms/Covad cite a decision by the Utah Commission disallowing conditioning costs as inconsistent with TELRIC, and they argue that while the FCC has recognized the right to recover the cost of providing

³⁰⁹ UNE Remand Order ¶¶193-194.

³¹⁰ Verizon's Initial Brief, p. 175, and cases cited there at n. 408.

³¹¹ Rhythms/Covad's Initial Brief, p. 10, citing Tr. 4,181-4,182.

conditioned loops, "it has consistently limited recovery to the efficient forward-looking cost of conditioning," as set forth in 47 CFR 51.507(e).³¹²

Again raising the issue of inconsistency between recurring and nonrecurring charges, Rhythms/Covad contend as well that Verizon is seeking to recover, through recurring charges based on a fiber network, the cost of a network from which load coils and excessive bridged tap have been eliminated, while also recovering, through nonrecurring conditioning charges, the cost of eliminating those devices. Citing decisions by the California, Massachusetts, and Illinois Commissions, they warn against the risk of allowing double recovery by using different network constructs for the calculation of recurring and nonrecurring charges. The CLEC Alliance argues to similar effect, citing, among other things, the Massachusetts Commission's finding that Verizon had misinterpreted the FCC's position and that the FCC's authorization of loop qualification and conditioning costs applies only to states that have assumed copper feeder for purposes of calculating TELRIC.³¹³

Verizon, meanwhile, contends that the CLECs unreasonably understand the FCC as having given with its left hand (the authorization of conditioning charges) what it then immediately took back with its right hand (by precluding such charges under TELRIC). It points out that current guidelines do not call for immediate elimination of bridged taps and load coils and are not violated by the network continuing to have that equipment. While the CLECs cite cases from other jurisdictions, it says, the precedent in New York call for allowing the costs, as do the FCC and other states not cited to

³¹² Rhythms/Covad's Initial Brief, p. 12. The FCC rule provides, in pertinent part, that "nonrecurring charges . . . shall not permit an incumbent LEC to recover more than the total forward-looking economic cost of providing the applicable element."

³¹³ CLEC Alliance's Initial Brief, p. 136.

by the CLECs. Verizon recognizes that some regulatory decisions do support the CLECs' position, but it urges the Commission to reject them.

In their reply brief, Rhythms/Covad again dispute the premise that DSL implies a copper construct, citing a recent FCC ruling that, in their view, eliminates any doubt that fiber loop facilities are included within the line sharing UNE.³¹⁴ They do not dispute Verizon's argument that current network standards do not require immediate removal of load coils and bridged tap, but contend simply that Verizon's competitors should not pay for that removal as it goes forward. The CLEC Alliance suggests that it would improperly discriminate between classes of customers using the same loop to set charges on the basis of the purpose--DSL or not--to which the loop is to be put.

Once again, I see no basis for recommending changes in the Commission's earlier determinations. The FCC seems clearly to have contemplated recovery of reasonable loop conditioning charges, including in situations where load coils would not have been installed under current design guidelines. The Massachusetts decision cited by Rhythms/Covad seeks to overcome the inconsistency alleged by the CLECs by inferring a limitation on the FCC's authorization of conditioning cost recovery, but it seems to me that any such limitation, if intended by the FCC, ought to have been stated more explicitly. Subject to the quantitative adjustments required by other aspects of this recommended decision and to possible prospective change in light of the reexamination of DSL provisioning technology discussed in the preceding section, I recommend allowance in concept of Verizon's loop conditioning charges.

³¹⁴ Rhythms/Covad's Reply Brief, p. 8, citing in the Matter of Deployment of Advanced Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Third Report and Order on Reconsideration, (rel. January 19, 2001) (Line Sharing Reconsideration Order) ¶10.

2. Loop Qualification Charges

Loop qualification refers to the process by which it is determined whether a particular loop can be used for DSL transmission. The dispute revolves around the CLECs' access to information needed to make that determination.

Verizon's "mechanized loop qualification" service affords basic information on loop qualification by querying an electronic database. CLECs wishing additional information are offered "manual loop qualification" and "engineering query," which involve "checking other databases, performing automated MLT tests on loops, and checking paper outside plant records (known as 'cable plats')"³¹⁵ These additional services incur additional charges.

Rhythms/Covad and the CLEC Alliance maintain that Verizon's proposal fails to meet the FCC's requirement that CLECs be provided all loop qualification information that exists anywhere in the incumbent's system and that the price for such access be based on the use of efficient forward-looking technology.³¹⁶ Rhythms/Covad contend that mechanized loop qualification queries a database that was installed, for the most part, over 20 years ago to serve Verizon's own needs as a retailer and that lacks the information--which should have been installed under Verizon's own internal procedures as well as industry standards--that the CLECs need. According to Rhythms/Covad, manual loop qualification "masks the detailed loop makeup information that a CLEC needs to determine whether a loop will support [its] services, and again provides as a chief output an indication of whether the loop will support [Verizon's] affiliated data service."³¹⁷ To obtain further information, CLECs must use manual loop qualification and engineering query, both of them slow and expensive manual

³¹⁵ Verizon's Initial Brief, p. 180.

³¹⁶ Rhythms/Covad's Initial Brief, pp. 18-19, citing UNE Remand Order ¶430 and Local Competition Order ¶685.

³¹⁷ Rhythms/Covad's Initial Brief, p. 21.

processes. In Rhythms/Covad's view, Verizon would, in effect, require CLECs to cover the costs of correcting its own failure to develop a proper loop database, and a forward-looking, TELRIC-compliant cost study would assume, in contrast, a market in which Verizon's network took account of the needs of its CLEC customers. They therefore urge that Verizon "provide CLECs direct electronic access to the loop makeup information contained in [its databases]. To meet the requirement of pricing based on forward-looking, efficient technology, the charge for this access should be minimal."³¹⁸ Rhythms/Covad and the CLEC Alliance cite decisions in other jurisdictions holding that the proper rate for loop qualification information is zero inasmuch as a forward-looking network would impose no need to qualify loops for xDSL service.

Verizon contends that direct access to the existing databases will be of little benefit to the CLECs inasmuch as the databases lack much of the loop makeup information the CLECs need; and it disputes the premise that any information not in the databases should, in fact, be there. It explains that the databases are populated not all at once but only as loops are updated or replaced; to do otherwise would be inefficient. If such a database were prepared, its users--including the CLECs--should be responsible for its cost, something they decline to recognize: "By rooting a purportedly forward-looking analysis in historical arguments about what Verizon should have done in the past, CLECs are seeking to avoid any contribution to loop qualification or make-up costs."³¹⁹ In reply, Rhythms/Covad deny that they are demanding immediate implementation of a fully populated database; rather, they contend, the FCC entitles them to the same loop makeup information that is available to Verizon and the cost of access to that information must be forward-looking. In their view, moreover, compliance with Verizon's initial guidelines and industry standards would already have produced a fully populated database.

³¹⁸ Id., p. 23.

³¹⁹ Verizon's Initial Brief, p. 182 (emphasis in original).

Whether to allow CLECs direct access to the database is a provisioning issue not properly posed here; and I see, in any event, little basis for questioning Verizon's claim that affording such access would do little to reduce the costs incurred by the CLECs, given that the database lacks much of the information they would need. The question then becomes one of how to treat the loop qualification costs that result from the limited ability of the automated database to provide the needed information.

The issue resembles the one posed by Verizon's house and riser inventory records. Here, too, a database designed with competitors' needs in mind might well have contained much more of the needed information; a strict TELRIC construct therefore might assume the existence of such a database; yet adopting that construct incurs the risk of assuming a "fantasy" record keeping system. As in the case of house and riser records, accordingly, the better course in principle appears to be to allow these costs, subject, like loop conditioning costs, to generally applicable adjustments and prospective revision in light of new technological assumptions.

One additional factor should be recognized here, however. Rhythms/Covad witness Riolo credibly suggests that compliance with Verizon's own guidelines related to its databases would have resulted, over the past 20 years, in more of the pertinent information being included, given the frequency of plant additions and rearrangements.³²⁰ Verizon's response stresses the soundness of its historical procedures for developing its databases--and does so persuasively--but affords no assurances regarding the extent to which those procedures were in fact complied with. In view of that failure of proof, and to provide additional incentive to develop the database as a tool that meets the CLECs' needs as well as Verizon's own needs as a retailer, I recommend a downward adjustment of 25% in Verizon's loop qualification charges. (The adjustment should be

³²⁰ Tr. 4,245.

in addition to those flowing from other, general, recommendations regarding Verizon's cost study.)

3. Recurring vs. Nonrecurring Charges

Citing the FCC's observation that nonrecurring charges associated with loop conditioning could raise barriers to entry,³²¹ the CLEC Alliance urges use of recurring, rather than nonrecurring charges for the recovery of any conditioning and qualification costs that may be allowed. It contends that recurring charges would be consistent as well with the accounting methods ordinarily used by telecommunications carriers, inasmuch as conditioning expenses, which render a loop DSL-compatible indefinitely, should be seen as a capital expense no different from that associated with initial installation of the loop. It points to SBC's use of a recurring charge for recovery of conditioning costs.

Verizon, however, maintains that the costs are incurred on a nonrecurring basis and that a nonrecurring charge therefore better reflects cost causation principles; comports with standard accounting procedure, which treats these costs as expenses; ensures cost recovery; and associates the costs with the CLEC causing it rather than with hypothetical future users.

Verizon's interest in ensuring that its costs are recovered would not alone warrant use of nonrecurring charges if recurring charges were otherwise proper. But the other factors cited by Verizon--primarily cost causation and standard accounting principles--suggest the use of nonrecurring charges to recover these clearly nonrecurring expenses.

Line Sharing

As already explained, "line sharing" refers to an arrangement in which a CLEC is given access to the DSL transmission capability of a copper loop that is also used by Verizon to provide retail voice grade services. The voice

³²¹ UNE Remand Order, ¶194, quoted above.

traffic is transported in the lower frequency range and the data traffic in the higher frequency range; the voice and data traffic are routed to their respective switches through the use of devices referred to as splitters. Two scenarios for the provisioning of line sharing have been developed in the ongoing DSL collaborative and are considered in Verizon's cost studies. In scenario A, the splitter is located in the CLEC's collocation space in Verizon's central office; in Scenario C, it is mounted on a relay rack located in Verizon's central office space.

In the Line Sharing Opinion, the Commission resolved a variety of issues related to line sharing costs. Some of those determinations spawned additional issues to be considered here.

1. Wide Band Testing Service Rate

In the line sharing track of the proceeding, Verizon proposed to recover the cost of the metallic test access unit (MTAU) and associated equipment and support for wide band testing (WTS), arguing that the addition of electronic devices to the loop and the advent of line sharing meant that the previously adequate metallic line test (MLT) would no longer suffice. It maintained that the additional costs associated with WTS would be offset by the savings associated with a reduced number of field dispatches to diagnose problems. CLECs objected to the charge, arguing that they were entitled under FCC regulations³²² to deploy their own testing systems and that TELRIC precluded allowing Verizon to charge CLECs for functions that the CLECs would perform for themselves. The Commission determined that CLECs wishing to deploy their own testing systems should not be required to pay for Verizon's testing service, and it accordingly made the charge optional. It noted, however, that CLECs would be required to bear the cost of additional service dispatches that might be necessitated by Verizon's not performing WTS on the loops in question.³²³

³²² 47 CFR §51.319(h)(7).

³²³ Line Sharing Opinion, pp. 25-27; Line Sharing Rehearing Order, p. 4.

In the present module of the proceeding, Verizon acknowledges (at least at the briefing stage) that the charge will be optional.³²⁴ Issues are posed, however, regarding the level of the charge to be imposed on CLECs electing the service.

Equipment Refund. Rhythms/Covad contend, first, that Verizon will be receiving a refund related to testing equipment and that CLECs should benefit from the refund to the same extent as Verizon.³²⁵

Verizon notes that the refund relates to the vendor's failure to integrate the WTS into DSLAM equipment that Verizon was then planning to use for its retail service, and it argues that even if such an arrangement were optimally efficient for a retail service, that would not be the case in a wholesale environment in which each DSL provider could choose its own splitter and DSLAM equipment. It insists that DSLAM/WTS integration is possible only for retail testing and is irrelevant to the present issue.³²⁶ Rhythms/Covad do not respond.

Although Rhythm/Covad attempt to attribute at least a part of the WTS costs Verizon seeks to recover to the transactions that gave rise to the refund, Verizon has shown those transactions to relate solely to retail operations. I see no basis for recommending sharing of the refund.

Demand for WTS. In view of the Commission's determination to make WTS optional, Verizon reduced the forecast demand for the service, thereby increasing the unit cost; it assumed that no unaffiliated CLEC would purchase the service inasmuch as most have claimed it was unnecessary. Rhythms/Covad

³²⁴ Verizon's Initial Brief, p. 187. Rhythms/Covad note Verizon's suggestion in testimony (Tr. 3,203) that the issue be revisited and objects to doing so; but Verizon does not pursue that request, which, in any event, would not be warranted.

³²⁵ Rhythms/Covad's Initial Brief, pp. 26-27. The details of the refund and its background comprise proprietary information relating to transactions between Verizon and its equipment vendors.

³²⁶ Verizon Initial Brief, pp. 192-193.

contend this means that if any CLEC actually does purchase the service, Verizon will overrecover and the CLEC will be significantly overcharged. Pointing out that Verizon has developed demand forecasts for other optional rate elements, they charge that Verizon has declined to address the demand issue here in a credible manner; they urge, therefore, that the Commission assume the level of demand originally proposed by Verizon. Verizon responds that retention of the original demand level would cause it to underrecover its costs and that the rate should be modified on a prospective basis as additional demand data become available.

Some adjustment for lower demand seems needed, but Verizon has shown no basis for its premise of zero. Still, what Rhythms/Covad see as the lack of seriousness in that premise does not provide a basis for disregarding the legitimate qualitative argument underlying it. It is impossible to forecast with any degree of confidence whether actual demand will be closer to zero or to Verizon's initial premise, and I recommend, as the most reasonable course of action in these circumstances, setting the unit rate on the basis of a demand midway between those parameters. The rate should be subject to prospective modification in one year on the basis of actual demand data.

Fill Factor. Rhythms/Covad contend that Verizon computed the 60% fill factor for Metallic Test Access Units (MTAUs) on the basis of a demand estimate lower than that used to compute unit costs, thereby understating it. It urges recalculation of the fill factor in a consistent manner. Verizon defends the 60% factor as conservative, inasmuch as the differing capacities of a DSLAM (576 lines) and a metallic testing unit (500 lines) depress MTAU utilization.

Although objecting on those grounds to Rhythms/Covad's proposal, Verizon nonetheless recognizes "that higher demand levels will drive this maximum utilization up."³²⁷ It should,

³²⁷ Verizon's Reply Brief, p. 108.

accordingly, recalculate the fill factor on the basis of the higher demand here recommended.

Land and Building Double Count. In the Line Sharing Opinion, the Commission reduced the WTS rate to avoid a double count of land and building costs. It reasoned that all land and building costs were already recovered through the network element rates set in the First Proceeding and that extending the L&B factor to a new item before it was adjusted in Module 3 would permit overrecovery. Rhythms/Covad maintain that Verizon failed to adjust the L&B factor in a manner that took account of all network elements--in particular, line sharing was excluded from the recalculation--and that the Commission's determination therefore continued to require exclusion of the factor from WTS rates. Verizon contends, however, that the Commission misunderstood the purpose of the L&B factor, which does not seek to recover an identified level of current or historical cost but to use historical ratios to estimate the forward-looking land and building costs associated with a given level of investment. Incremental investments have incremental costs associated with them.

Rhythms/Covad counter that it is Verizon that misunderstands the Commission's mandate, and that Verizon has never tried to demonstrate that the L&B costs associated with WTS are additional costs in the manner it suggests. Under Verizon's logic, applying the factor to any investment would identify additional forward-looking costs. They assert that "the Commission truly had the stronger logic on this point when it recognized that the L&B factor must be calculated using the universe of investment and then applied to determine forward-looking L&B costs for that universe."³²⁸ They add that the L&B factor is flawed in its reliance on historical investment-to-investment ratios, which may result in the allocation of greater land and building costs to WTS than would be incurred on a forward-looking basis that takes account of more compact equipment.

³²⁸ Rhythms/Covad's Initial Brief, p. 31.

Verizon responds that the validity of applying a factor to a particular equipment item does not depend on whether the item was included in the development of the factor but only on whether the factor was appropriately calculated for the class of equipment to which the item belongs. It insists there is no double recovery, inasmuch as the previous application of the factor to non WTS equipment makes no allowance for the land and building requirements associated with the WTS equipment. It adds that the attack on the use of historical data in developing the factor has already been rejected by the Commission.

Verizon argues, in essence, that the double counting of land and building costs is impossible a priori. It sees the issue not as one of fact--whether the costs proposed to be recovered already have been recovered elsewhere--but as one of definition; in its view, the L&B factor is not a mechanism for recovering a measurable body of costs, but a ratio defining the costs to be associated with each increment of equipment, however many.

The Commission, however, has made it clear that the issue is one of fact. In the Line Sharing Opinion, it clearly contemplated a measurable body of costs to be spread over the proper number of elements: "All land and building costs are already recovered in the network element rates set in the First Network Elements Proceeding, and to extend the factor to a new item before it is adjusted in Module 3 would permit overrecovery of the costs."³²⁹ Soon after, in its opinion in the collocation module of the proceeding, the Commission again held that it is necessary to consider the amount of land and building costs to be recovered, not merely the amount of investment to which the factor is to be applied:

To the extent collocation-related land and building costs are incremental to those recovered through the Phase 1 CCF--
[Verizon's] premise--there indeed would be

³²⁹ Line Sharing Opinion, pp. 27-28 (footnote omitted).

no double count. But the incremental land and building costs associated with collocation...have not been shown to be anything but minimal, accounting for less than 1% of incremental land and building investment since 1994, and that result is consistent with the premise that collocation arrangements, in large part, are housed by making additional use of existing space. On that basis it can be concluded that nearly 100% of currently recognizable land and building costs already are recovered through existing UNE rates, and that extension of the land and building CCF to collocation, without commensurately adjusting the factor in a way that will not be done until Module 3 is decided, would over-recover those costs.³³⁰

The issue thus comes down to whether the L&B factor has been recomputed in a manner that satisfies the precondition set in the Line Sharing Opinion for its application to WTS. Inasmuch as all UNE rates are now being set simultaneously, it appears that the L&B loading is being consistently spread over all units to which it should apply, and the precondition therefore has been met.

2. Recovery of Line Sharing OSS Costs

In the Line Sharing Opinion, the Commission adopted Verizon's proposal to set as yet unknown operation support system (OSS) costs related to line sharing at zero, subject to true-up once the costs could be better estimated. Verizon initially proposed continuation of that arrangement. In its supplemental testimony, however, it identified a portion of the relevant OSS costs, equal to 22¢ per line per month, and it asks that recovery of that cost be approved now but that the rate remain temporary to permit further adjustment.

³³⁰ Opinion No. 00-8 (issued June 1, 2000) (Collocation Opinion), pp. 10-11 (footnotes omitted).

Rhythms/Covad object, citing the FCC's stated concern that OSS development was seldom driven by unbundling considerations alone and that incumbent LECs should not be permitted to attribute an unreasonable portion of their OSS development costs to line sharing unbundling.³³¹ They maintain that Verizon has failed to meet its evidentiary burden of distinguishing the portion of the costs incurred to benefit CLECs from that incurred to benefit Verizon's own operations and add that partial recovery of the costs now will complicate their analysis. Verizon responds that it has submitted detailed information on the rationale for the rate at issue, including the purpose, justification, and cost of the OSS enhancements involved.³³²

I recommend adoption of Verizon's proposal. Its testimony fully describes the costs it proposes to recover, and they appear unrelated to any of its retail activities. As it suggests, the rate element should remain temporary, to permit further adjustment; but it should be clear that any such adjustment could be not only upward, to reflect reasonable additional costs, but also downward, to capture any newly adduced savings.

3. Splitter Administration and Support Charges

Verizon proposed a "splitter maintenance" charge, said to recover actual splitter maintenance costs along with wholesale marketing support costs related to line sharing. In the Line Sharing Opinion, the Commission held that the charge could not be applied to line sharing scenario A, inasmuch as the

³³¹ Rhythms/Covad's Initial Brief, p. 33, citing Deployment of Wire Line Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket 96-98 (released December 9, 1999) (Line Sharing Order) ¶106.

³³² Verizon's Reply Brief, p. 109, citing Tr. 3,208-3,212.

splitter would be located in the CLEC's collocation space and Verizon would incur no maintenance costs. Verizon sought rehearing and proposed a reduced charge for scenario A, which excluded the actual splitter maintenance costs, leaving only the other costs sought to be recovered through the imprecisely named charge. The Commission denied the petition, holding that there might indeed be no reason to distinguish scenario A from scenario C with respect to the non-maintenance costs recovered through the reduced charge, but that it was less clear whether that meant that the costs should be recovered in scenario A or, instead, removed from the scenario C charge. It allowed Verizon to submit supplemental testimony on the issue.³³³

Verizon's supplemental testimony proposes two charges. For scenario A, the charge would be limited to those recovered through the wholesale marketing ACF and those recovered through the other Support ACF. For scenario C, it would include those costs along with maintenance costs recovered through the network ACF. Verizon contends that each item represents a cost properly incurred with line sharing.

Rhythms/Covad object to imposition of even the reduced charge on scenario A CLECs, contending that Verizon has failed to provide the required "detailed explanation of how the costs involved are associated with CLEC splitters and of the extent to which those costs go unrecovered through other charges."³³⁴ They argue, first, that Verizon has shifted some 46% of its original network ACF (the application of which to scenario A was rejected) to the other support ACF, thereby attempting to recover under a different name charges already disallowed. They maintain further that their own equipment suppliers perform product management, advertising, and customer interfacing functions with respect to the splitters and that Verizon is not involved in those processes. Nevertheless, Verizon's proposed

³³³ Line Sharing Opinion, pp. 33-34; Line Sharing Rehearing Order, pp. 4-7.

³³⁴ Line Sharing Rehearing Order, p. 7.